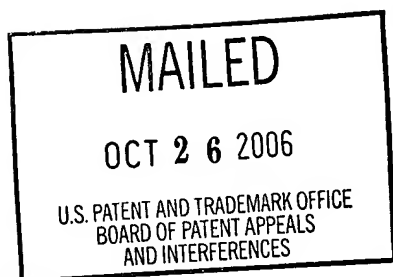


The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte MASAHIRO YAMANAKA



Appeal No. 2006-2322
Application No. 10/676,417
Technology Center 3600

ON BRIEF

Before OWENS, NAPPI and HORNER, *Administrative Patent Judges*.
HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) from the examiner's final rejection of claims 35, 36, and 38-56. Claim 37 is objected to as being dependent upon a rejected base claim, but is indicated as being allowable if rewritten in independent form. Claims 1-34 have been canceled.

We reverse the rejections and remand the application to the examiner for further consideration of the claims pursuant to 37 C.F.R. § 41.50(a)(1).

BACKGROUND

The appellant's invention relates to a bicycle crank axle. Claim 35, reproduced below, is representative of the subject matter on appeal.

35. A bicycle crank axle adapted to be rotatably supported within a bottom bracket of a bicycle frame, wherein the crank axle comprises:

an axle body having first and second end portions;

wherein a portion of the axle body forms a projection extending radially outwardly from one of the first and second end portions of the axle body, wherein the projection is dimensioned and positioned to be located externally of the bottom bracket so as to abut against a laterally outer side surface of a bicycle crank arm to prevent the bicycle crank arm from moving axially outwardly; and

wherein the axle body is dimensioned so that the crank arm that abuts against the projection is mounted to the projection by passing the other one of the first and second end portions of the axle body through the crank arm and passing the axle body through the crank arm until the crank arm is mounted to the projection.

A copy of all of the claims on appeal can be found in the appendix to the appellant's brief. The examiner relies upon the following as evidence of unpatentability:

Ernest Arnold Radnall¹ ("Ernest")
Yamanaka

GB 356,497 Sep. 10, 1931
US 5,845,543 Dec. 08, 1998

¹ The examiner and the appellant referred to this reference throughout as the "Ernest" reference. For purposes of clarity, we will use the same nomenclature adopted by the examiner and appellant.

The following rejections are before us for review.

1. Claims 35, 36, and 38-45 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Ernest.
2. Claims 46-56 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ernest in view of Yamanaka.

Rather than reiterate in detail the conflicting viewpoints advanced by the examiner and the appellant regarding this appeal, we make reference to the final office action (mailed July 15, 2005) and the examiner's answer (mailed March 14, 2006) for the examiner's complete reasoning in support of the rejection and to the appellant's brief (filed January 12, 2006) and reply brief (filed May 15, 2006) for the appellant's arguments.

OPINION

In reaching our decision in this appeal, we have carefully considered the appellant's specification and claims, the applied prior art, and the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations that follow.

In the rejection of independent claim 35, the examiner determined that Ernest discloses an axle body (1) that is dimensioned so that a crank arm (17) is capable of being mounted to a projection (16) on one end portion of the axle body (1) by passing another end portion (3) of the axle body (1) through the crank arm (17) and passing the axle body (1) through the crank arm (17) until the crank arm (17) is mounted to the projection (16). Final Office Action, p. 3.

The appellant argues that the end (3) of the axle (1) of Ernest cannot be inserted into the opening (18) of crank arm (17) because the flats (4) at end (3) are shallower than the flats (15) on the other end. The appellant further argues that cylindrical portions of axle (1) directly to the right of the flats (4) cannot pass through opening (18) in crank arm (17). Brief, p. 3.

In response, the examiner concedes that “Ernest’s Fig. 3 shows that the cylindrical portions of axle 1 could not pass through the opening 18, 19 in the crank arm 17. ...” Answer, p. 3. The examiner argues that the assembly of Ernest anticipates claim 35 because the user can mount the axle (1) to the crank arm (17) by passing the end of the axle having the flats (15) through the opening (18) of crank arm (17) and then bending the flats (15) to form the projections (16), as shown in Figure 1. Answer, p. 4.

While we agree that Ernest discloses an axle (1) dimensioned so that the crank arm (17) can be mounted to the axle (1) via the end having flats (15), we find that the crank axle disclosed in Ernest is not “dimensioned so that the crank arm that abuts against the projection is mounted to the projection by passing the other one of the first and second end portions of the axle body through the crank arm and passing the axle body through the crank arm until the crank arm is mounted to the projection” as recited in claim 35. In order for Ernest to anticipate claim 35, it would require the crank shaft or axle (1) to be dimensioned so that one could attach crank arm (17) thereupon by passing it over the end (3) and along the body of the shaft (1) until it rests over the flats (15) at the other end of the shaft.

As shown in Figure 3 of Ernest, crank arm (17) has an aperture (18) provided with flat parallel sides (19) and arcuate ends. Ernest, page 2, line 130 – page 3, line

3. Ernest discloses that the body of crank shaft (1) is a “round” bar. Ernest, page 2, lines 79-81. The examiner admits on page 3 of the answer that the cylindrical portion of the shaft (1) could not pass through the opening (18) of crank arm (17). As such, we fail to see how Ernest anticipates the limitation of claim 35 of an axle body dimensioned so that it is possible to pass “the axle body through the crank arm until the crank arm is mounted to the projection.” Accordingly, we do not sustain the examiner’s rejection of independent claim 35 or its dependent claims 36 and 38-45 as being anticipated by Ernest.

The examiner’s rejection of claims 46-56 relies on the disclosure of Ernest in view of Yamanaka. We find that the teachings of Yamanaka fail to cure the deficiencies of Ernest. Specifically, we find that Yamanaka does not provide a teaching, suggestion, or motivation to modify the axle body of Ernest so that it is dimensioned to allow the axle body to be passed through the crank arm from one end until the crank arm is mounted to a projection on the other end. Rather, Yamanaka teaches that the end faces (49A, 49B) of the crank axle (5) are provided with internal threads (53) for affixing the crank arms (1). Yamanaka, col. 4, lines 16-17. As such, Yamanaka does not teach or suggest this missing disclosure of Ernest. Accordingly, for the same reasons provided above, we do not sustain the examiner’s rejection of dependent claims 46-56 as being unpatentable over Ernest in view of Yamanaka.

We find it necessary, however, to REMAND this case to the examiner pursuant to 37 C.F.R. § 41.50 for consideration of the following issues:

- 1) During any further prosecution of the application, the examiner should consider whether a rejection of claim 35 under 35 U.S.C.

§ 103(a) based on the combination of Great Britain patent GB 267,796 to Richards (“Richards”)² in view of Ernest would be appropriate.

- 2) The examiner should also consider whether a rejection of any of dependent claims 36-56 under 35 U.S.C. § 103(a) based on the above combination, alone, or in view of other pertinent prior art is appropriate.

In particular, with regard to claim 35, Richards discloses a bicycle crank axle (11) adapted to be rotatably mounted within wheel hub (1) which is mounted between the front forks (2) of the bicycle. Richards, page 2, lines 30-35 and 79-102. The crank axle (11) includes an axle body having first and second end portions. Richards, Figures 1 and 2. A portion of the crank axle (11) forms a projection (unnumbered head of bolt 11) extending radially outwardly from one of the first and second end portions of the axle body, wherein the projection is dimensioned and positioned to be located externally of the wheel hub (1) and the front forks (2) (Figure 2) so as to abut against a laterally outer side surface of a bicycle crank arm (7) to prevent the bicycle crank arm (7) from moving axially outwardly. Richards, page 2, lines 32-33. The axle body (11) of Richards is dimensioned so that the crank arm (7) that abuts against the projection (i.e., the bolt head) is mounted to the projection by passing the other one of the first and second end portions of the axle body (11) through the crank arm (7) and passing the axle body (11) through the crank arm (7) until the crank arm (7) is mounted to the

² The appellant cited the Richards patent to the examiner in an Information Disclosure Statement filed on January 13, 2005.

projection (i.e., the bolt head). Richards, page 2, line 114 – page 3, line 10. As described in one embodiment of Richards, the head of bolt (11) abuts the outer surface of crank arm (7) and the opposite threaded end of bolt (11) is received by complimentary threads in crank arm (7a). Richards, page 2, lines 7-8 (teaching that nut element 12 may form part of the crank). Richards teaches that the assembly “enable[s] the parts to be disassembled for transit purposes and readily assembled at their destination.” Ernest, page 1, lines 16-19, see also page 2, lines 40-43.

Richards discloses every element of claim 35 except for the crank axle being supported within a bottom bracket of a bicycle frame such that “the projection is dimensioned and positioned to be located externally of the bottom bracket.” Rather, Richards shows the crank axle being supported within a wheel hub (1) mounted between the front forks (2) of a tricycle or bicycle of the type in which the pedals are attached directly to the front wheel, rather than attached to the bicycle frame and engaged with the wheels via a sprocket and chain assembly. Richards, page 2, lines 30-35. As such, the projection of axle (1) of Richards is dimensioned and positioned to be located externally of wheel hub (1) and front forks (2) (see Figure 2) rather than externally of a bottom bracket of a bicycle frame.

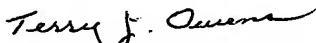
Ernest discloses a crank-shaft mechanism for bicycles in which one of the cranks is associated with a sprocket wheel. Ernest, page 2, lines 4-11. As such, the crank shaft of Ernest is disposed within a bottom bracket of the bicycle frame. See Figure 1 (dashed lines). It would have been obvious to one having ordinary skill in the art at the time of the invention to have used the assembly of Richards to mount crank arms and pedals to a bottom bracket of a bicycle frame, as taught by Ernest, for ease of assembly and disassembly of the crank arms and pedals.

We remand this application to the examiner pursuant to 37 C.F.R. § 41.50(a)(1) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)) for further consideration of a rejection. Accordingly 37 C.F.R. § 41.50(a)(2) applies if a supplemental examiner's answer is written in response to this remand by the Board.

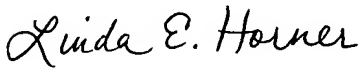
CONCLUSION

To summarize, the decision of the examiner to reject claims 35, 36, and 38-56 is reversed and the application is remanded to the examiner for further consideration of the claims.

REVERSED AND REMANDED


TERRY J. OWENS
Administrative Patent Judge


ROBERT E. NAPPI
Administrative Patent Judge


LINDA E. HORNER
Administrative Patent Judge

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Appeal No. 2006-2322
Application No. 10/676,417

Page 10

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